

Lepidoptera Sniff Trail- Life cycles of moths and butterflies

Materials:

- Lepidoptera Sniff Trail cards laminated, hole punched, strung on lanyard each with a cotton ball.
- Sniff Trail Clue Sheet
- Laminated butterfly and moth photos
- Five scents (extracts like lemon, cinnamon, anise, coconut, mint)

Teaching Strategy

- a. Explore the diversity of insect life cycles with this activity.
- b. Inquire: Who can remember a butterfly life cycle? (You might ask about a monarch because students often know this life cycle.). Do all butterflies and moths eat the same thing?
- c. With students in five groups, give each group a clipboard with clue sheet, pencil and a scent canister (Use old film canister with cotton ball scented with extract.)
- d. Explain to students that with this activity, they will sniff clues hanging from the trees to find information about the four stages of a butterfly or moth life cycle and its host plant. If their scent container smells like mint, they sniff to find the mint clues and record only those for a total of five clues.
- e. Ask: What is a host plant? What is a host?
- f. As students are sniffing the clues and matching scents, record information on the data sheet. Once they have five clues, group returns to the instructor to learn what butterfly or moth trail they were on.
- g. As groups find all the clues, tell them to review their clues, arrange the clues in a cycle, no beginning or end, and that they will share their butterfly or moth's name and one interesting fact about the organism with the rest of the class.
- h. Groups share out. They will show the photos, give the name of the organism and one fact.
- i. To close, ask: what are some differences students saw in the Lepidopterans on the trail? What are some similarities? Why are host plants important?



Butterfly and Moth Trails

There are five discovery trails; each trail has a unique scent. Your objective is to find your scent clues, record them, and determine which discovery trail you are following. For example if your group's special scent is lemon, only record lemon scented clues. Fill out the chart below as you go.

Clues	Which part of cycle?

What Butterfly Trail were you on?

In the boxes to the right of the clues, write which part of the life cycle each clue addressed.



This **caterpillar (larvae)** mimics a bird dropping in early stages (**instars**). What is it mimicking in this photo?



<http://www.ag.auburn.edu/enpl/bulletins/caterpillar/photo30.htm>

Adults feed on nectar host plants such as joe-pye weed and thistles.



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<http://www.butterfliesandmoths.org/species/Papilio-troilus>

The caterpillar of this species forms its **pupa**, or **chrysalis**, on stems of its host plant, spicebush.



<http://featherflower.blogspot.com/2008/08/from-chrysalis-to-butterfly.html>

Eggs are laid one-by-one on the underside of spicebush leaves. Do you think this is a good place for the eggs?



<http://insidestorey.blogspot.com/2011/06/time-for-butterfly->

Host plants for caterpillars of this species include spicebush (for which the butterfly is named).



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<http://www.duke.edu/~jspippen/plants/intera.htm>

The **caterpillars (larvae)** of this species have five stages (instars).



http://jimmacornac.blogspot.com/2008_08_01_archive.html

To form a **pupa** or **cocoon**, the caterpillar wraps itself in a leaf and a single long thread of silk. Does this seem like a good way to camouflage? Why?



<http://www.whatsthatbug.com/2008/05/18/>

Adult moths do not eat and only live about a week.



<http://beidlerforest.blogspot.com/2010/04/>

Host plants for caterpillars of this species include walnut, hickory, and persimmon trees.



<http://www.duke.edu/~cwcook/trees/qual.html>

Eggs are laid 4-7 at a time on the underside of host plant leaves.



<http://entnemdept.ufl.edu/creatures/mis/c/moths/>

These **adult** butterflies have eyespots. What is an advantage to have these eyespots?



<http://www.naturemuseum.org/online/thebutterflylab/fieldguide/native.html>

This prickly-looking **caterpillar** has five instars, or stages, as a **larva**.



<http://www.naturemuseum.org/online/thebutterflylab/fieldguide/native.html>

The **pupa**, or **chrysalis**, looks like a bird dropping. This adaptation protects it from hungry predators.



<http://www.naturemuseum.org/online/thebutterflylab/fieldguide/native.html>

Eggs are laid on the underside of host plant leaves.



<http://www.butterflyfunfacts.com/>

Host plants for caterpillars of this species include plantain and snapdragon plants.



<http://www.naturemuseum.org/online/thebutterflylab/fieldguide/native.html>

Why do you think the **caterpillar (larva)** of this species is brightly colored?



insects.about.com/

Pupae (cocoons) form underneath leaves. In about 10 days, the adults emerge. Is this pupa well camouflaged?



<http://www.whatsinabug.com/2011/08/16/>

Eggs are laid on top of the female cocoon and there can be up to 300 eggs!



<http://www.buglifecycle.com/?p=807>

Host plants for caterpillars of this species include oak, birch, locust, cherry, and elm trees.



<http://www.statesymbolsusa.org/Maryland/treeWhiteOak.html>

Male **adult** moths are gray and fly at night searching for females using their sense of smell.



<http://www.whatsinabug.com/2011/08/16/>

The **adult** butterfly mimics another, more well-known butterfly. Do you know which one?



<http://www.butterflyfunfacts.com>

How many horns do you see on this **caterpillar (larva)**?



<http://www.butterflyfunfacts.com>

This **chrysalis** looks like a bird dropping! How does this adaptation help the animal?



<http://www.butterflyfunfacts.com>

Eggs are laid on the ends of willow or cottonwood leaves.



<http://www.butterflyfunfacts.com>

Host plants for the caterpillar of this species include willow and poplar.



<http://www.butterflyfunfacts.com>

The **adult** butterfly mimics another, more well-known butterfly. Do you know which one?

The **caterpillar (larva)** of this species is called the "hickory horned devil". It's "horns" are harmless. Why do you think it has them?

This **chrysalis** looks like a bird dropping! How does this adaptation help the animal?

Eggs are laid on the ends of willow or cottonwood leaves.

Host plants They are commonly found on species of the family (Juglandaceae) including walnut (*Juglans nigra*), butternut or white walnut (*Juglans cinerea*), and a variety of hickories (*Carya* spp.)

including pecan

<http://www.butterflyfunfacts.com>



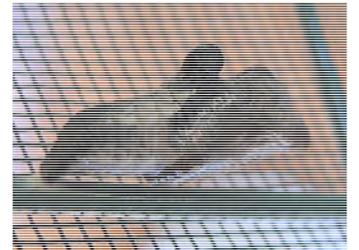
Tim Farmer, 2013

<http://www.butterflyfunfacts.com>

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VICEROY



SPICEBUSH SWALLOWTAIL



TUSSOCK MOTH



LUNA MOTH



BUCKEYE

